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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,993	09/30/2005	Michihito Ueda	061352-0100	3028

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EXAMINER	
GOODLEY, JAMES E	

ART UNIT	PAPER NUMBER
2817	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/532,993	UEDA, MICHIHITO	
	Examiner	Art Unit	
	JAMES E. GOODLEY	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 18* is/are rejected.

7)☒ Claim(s) *14-17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 April 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9-30-2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-13 and 18 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over **claims 1-37 of copending Application No. 10/781,819**. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed fluctuation generator is substantially analogous to the claimed variable signal generator in the present application. The claimed difference calculation means and thresholding unit are art recognized equivalents of the claimed comparator operative to output a

binary pulse. Histogram values as part of the fluctuation generator are claimed in claim 18 and are inherent to the claimed structure of the co-pending application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7, 10, 11 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by ***Naudot et al. (US 4,136,326)***.

Regarding **claims, 1-5, 7, 10, 11 and 18**, Fig. 1 and columns 4 and 5 of Naudot disclose a stochastic pulse generator comprising a variable signal generator [6-9] operative to generate a variable signal [reference signal of random amplitude] which varies randomly, and an analog comparator [10] operative to output a binary signal of High or Low depending on which of one input signal and another input signal is larger or smaller than the other (see specifically lines 40-54 of column 2), wherein when the variable signal is inputted as said one input signal to the comparator from the variable signal generator, the comparator stochastically outputs pulses (see lines 55-65 of column 1), the number of which corresponds to a magnitude of said another input signal [periodic analog seismic sample].

The variable signal generator is operative to generate, as the variable signal, a control random signal statistically having a histogram in terms of its magnitude (random amplitude and frequency) and a statistical histogram of the pulses is controlled based on a distribution of the histogram of the control random signal.

The variable signal generator has a storage device [registers 6 and 8] and is operative to generate the control random signal by digital/analog conversion (via block 9) of random number digital data having a predetermined histogram stored in the storage device.

The random number digital data having the predetermined histogram is obtained by an inverse transformation method or a rejection method (as a consequence of stochastic process).

The variable signal generator is operative to generate a random variable signal having a histogram becoming uniform in at least an infinite time (uniformity being limited only by the randomness of the generator).

The method steps are inherent to the structure.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6, 8, 9, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Naudot***.

Regarding **claim 6**, Naudot fails to disclose wherein the pulse generator has a low-pass filter for blocking a frequency band higher than the frequency band of the periodic signal; and the pulses outputted from the comparator are inputted to the low-pass filter.

However, it is necessary that the random output from generator 6 in Naudot have at least frequency components higher than the frequency band of the periodic signal, in order for the stochastic process to work effectively and be as random as possible. Although there is not a low-pass filter to block the higher frequency band, one of ordinary skill in the art would recognize this feature as a mere design consideration in choosing the proper bands of operation to match between the periodic signal and random signal.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a low-pass filter to filter out a frequency band of the random signal that is higher than the band of the periodic signal, for the purpose of properly matching the frequency bands to achieve an accurate random and stochastic detection process.

Regarding **claims 8 and 9**, Naudot fails to disclose the stochastic pulse generator according to claim 7, wherein the variable signal is chaos of a tent map or chaos of a Bernoulli shift map.

However, both types of chaos are well known in the art to generate random signals from a pseudo-random number generator.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize chaotic tent maps or Bernoulli shift maps to generate the pseudo-random output of generator 6 in Naudot, as such methods are conventional in the art and generally recognized as equivalent to the method disclosed in Naudot.

Regarding **claims 12 and 13**, Naudot does not specifically disclose that the comparator is a chopper type CMOS comparator.

However, chopper type CMOS comparators, Schmitt triggers, or the like are well known in the art to compare two analog input signals and generate a 1-bit binary output signal. The benefit to a chopper comparator is a cleanly shaped square wave output.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a CMOS chopper comparator in place of the comparator of Naudot, for the purpose of more cleanly shaping the output pulse as a square wave.

Allowable Subject Matter

Claims 14-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding **claims 14-17**, neither Naudot, nor any other reference of record discloses or fairly suggests an absolute difference processor comprising first and second stochastic pulse generators each comprising a stochastic pulse generator as recited in claim 1; and

an exclusive-OR circuit for outputting an exclusive-OR of an output of the first stochastic pulse generator and an output of the second stochastic pulse generator; wherein

when said another input signal and the variable signal which are inputted to the first stochastic pulse generator are V.sub.S1 and V.sub.C1, respectively, while the output of the first stochastic pulse generator is V.sub.O1, and said another input signal and the variable signal which are inputted to the second stochastic pulse generator are V.sub.S2 and V.sub.C2, respectively, while the output of the second stochastic pulse generator is V.sub.O2, the variable signals V.sub.C1 and V.sub.C2 are the same variable signal:

thereby obtaining an absolute difference between the value of said another input signal V.sub.S1 and that of said another input signal V.sub.S2 in the form of a number of stochastic pulses comprising the exclusive-OR.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES E. GOODLEY whose telephone number is (571)272-8598. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on (571)272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James E Goodley/

Examiner, Art Unit 2817

/Robert Pascal/

Supervisory Patent Examiner, Art Unit 2817